Wetland and Riparian Restoration on the Bosque del Apache NWR: Saltcedar Control within Native Cottonwood Gallery Forest

Fiscal Year 2002 Project 8240 Final Report

Principal Investigator: John P. Taylor
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Background:

The riparian zone of the Bosque del Apache National Wildlife Refuge (NWR) was historically characterized as a mosaic of woodlands, brushlands, marshes, and meadows supporting diverse faunal assemblages. Periodic flooding events on the Rio Grande encouraged river meandering and dynamic changes in vegetative communities. The pristine nature of the floodplain changed irreversibly through the 20th century, however. Major irrigation developments on the Rio Grande began by 1914 with the construction of reservoirs, conveyance canals and drains which changed the annual river hydrograph and resulted in the loss of wetland and meadow habitats. Changes in river flow management curtailed the regeneration of native woody plants which historically released seed coinciding with late spring flooding events. In this void exotic saltcedar vegetation, introduced during this same time period, has flourished and now dominates wide areas. The depletion of these habitats encouraged the U.S. Fish and Wildlife Service to establish the Bosque del Apache NWR in 1939. In the absence of periodic severe flooding which set back vegetative succession and rejuvenated floral communities, needed disturbance has been accomplished mechanically through the use of heavy equipment. Disturbance has often been accomplished in conjunction with saltcedar (*Tamarix ramossima*) removal prior to restoration with native riparian woody species. Wildlife has responded quickly along with a growing public interested in wildlife oriented recreation. Although recent advances are encouraging, severe shortages of quality wetland and riparian habitat are apparent in the Middle Rio Grande Valley. It is generally recognized that some of the greatest potential for restoring these habitats is at Bosque del Apache NWR.

Description of Study Area:

Funding resources including the North American Wetlands Council Act, the National Fish and Wildlife Foundation, the Bosque Improvement Group, Friends of the Bosque del Apache NWR, the U.S. Fish and Wildlife Service (FWS) Challenge Cost Share Program, Wildland Urban Interface (FWS) fire funding, New Mexico State University, and the Middle Rio Grande ESA Collaborative Program were combined to control exotic saltcedar on 961 acres of the Bosque del Apache NWR (Figure 1). New riparian forest, revegetated xeric riparian areas, saltgrass meadow, seasonal wetlands, and semi-permanent riparian wetlands will be developed utilizing refuge water delivery capabilities, water resources, and labor. Semipermanent riparian wetland development over approximately 99 acres (unit 34A) (Figure 1) is intended to meet habitat

requirements for the southwestern willow flycatcher, an endangered species which breeds on the refuge.

Purpose and Objectives:

Middle Rio Grande ESA Collaborative Program Funding consisting of $38,500 was solicited to avert catastrophic wildfire within 5 cottonwood gallery forest blocks totaling 110 acres by removing heavy saltcedar and dead and down wood. Following extensive saltcedar control in adjacent areas, forest blocks are to be incorporated into native riparian forest management units outlined above.

Results:

Approximately 110 acres of dense saltcedar understory was removed from cottonwood gallery forest patches within units 32C, 33, 34B, 34C, and 35 on the Bosque del Apache NWR in 2002. Work was accomplished using contracted hand crews who removed saltcedar and dead and downed wood into adjacent clearings for gathering and burning by Bosque del Apache fire personnel. Saltcedar cut stumps were immediately treated with a 33% ester formulation solution of triclopyr herbicide (Figures 2 and 3). Costs for this treatment program were much higher ($1,800/acre) than originally anticipated ($350/acre). Funding shortfalls were recovered utilizing FWS wildland urban interface fuels reduction monies. Subsequent monitoring has shown a control rate of about 80%. Re-treatment on resprouts will occur in August, 2004 with a 1% foliar application solution of imazapyr herbicide to achieve 98-99% control.

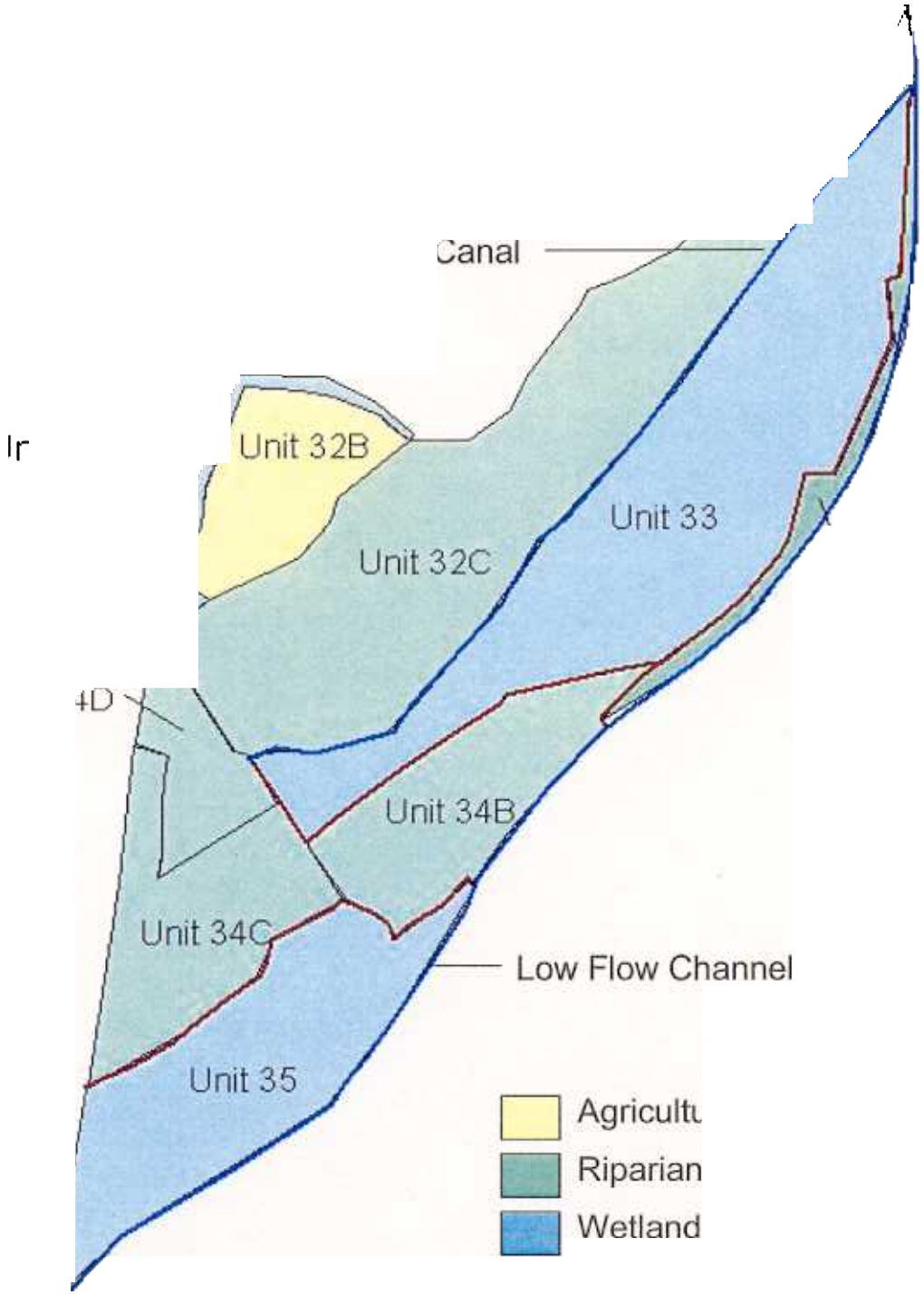
Habitat Restoration:

Following successful saltcedar control (98-99%), irrigation management will begin in 2004 (unit 35), 2006 (unit 33) and 2007 (units 34B and 34C) to favor wetland and mesic riparian forest restoration (Figure 1).

Figure 1. Overall habitat expansion on the Bosque del Apache NWR totaling 961 acres.

Figure 2. Hand crew removal of saltcedar and herbicide application on exposed cut stumps at the Bosque del Apache NWR.

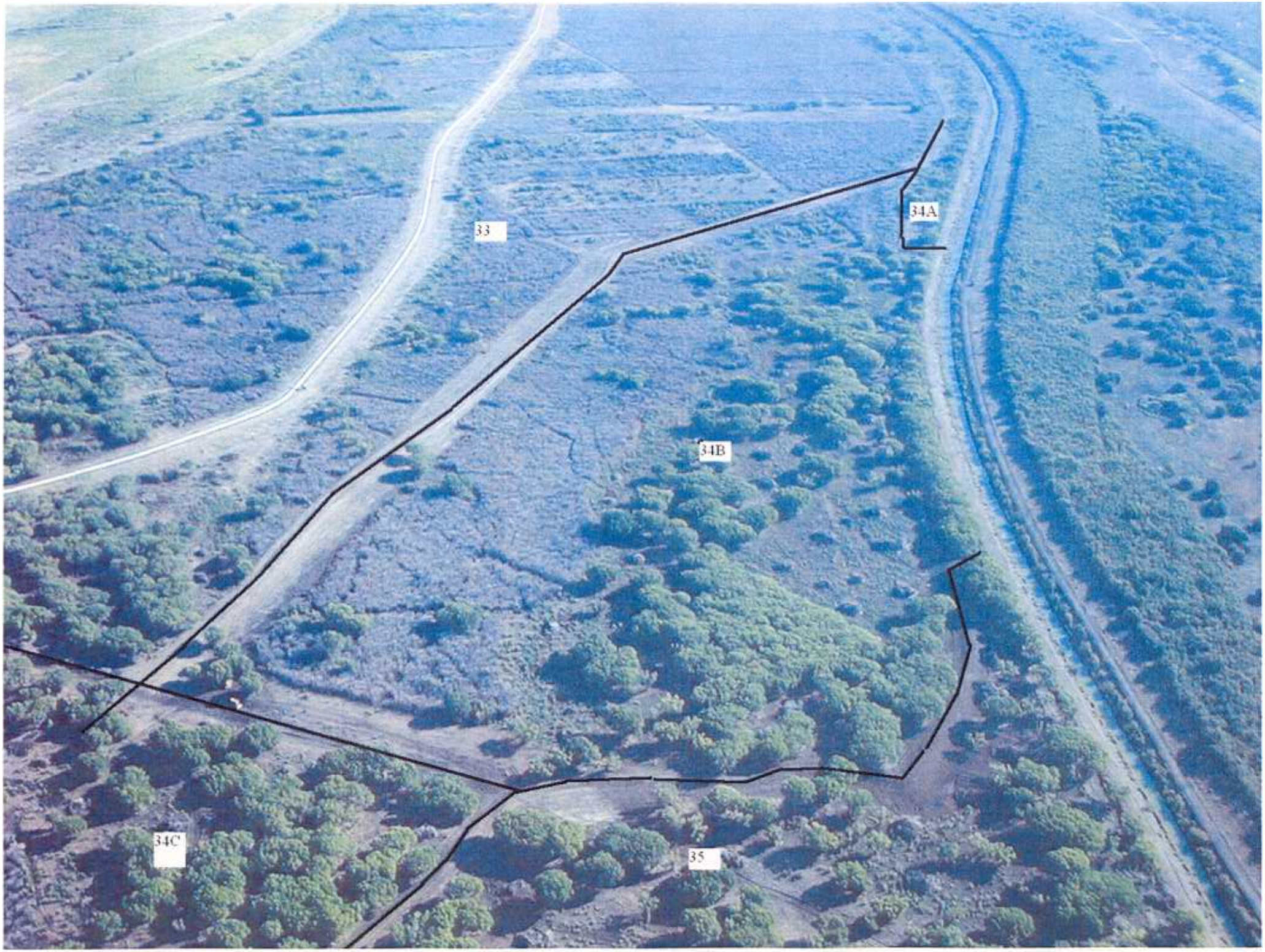
Figure 3. Aerial view of completed fuels reduction blocks by hand crews at the Bosque del Apache NWR.



New Units

32A	25 acres
32B	73 acres
32C	265 acres
33	272 acres
34A	99 acres
34B	91 acres
34C	95 acres
34D	41 acres
35	142 acres
Total	961 acres


solo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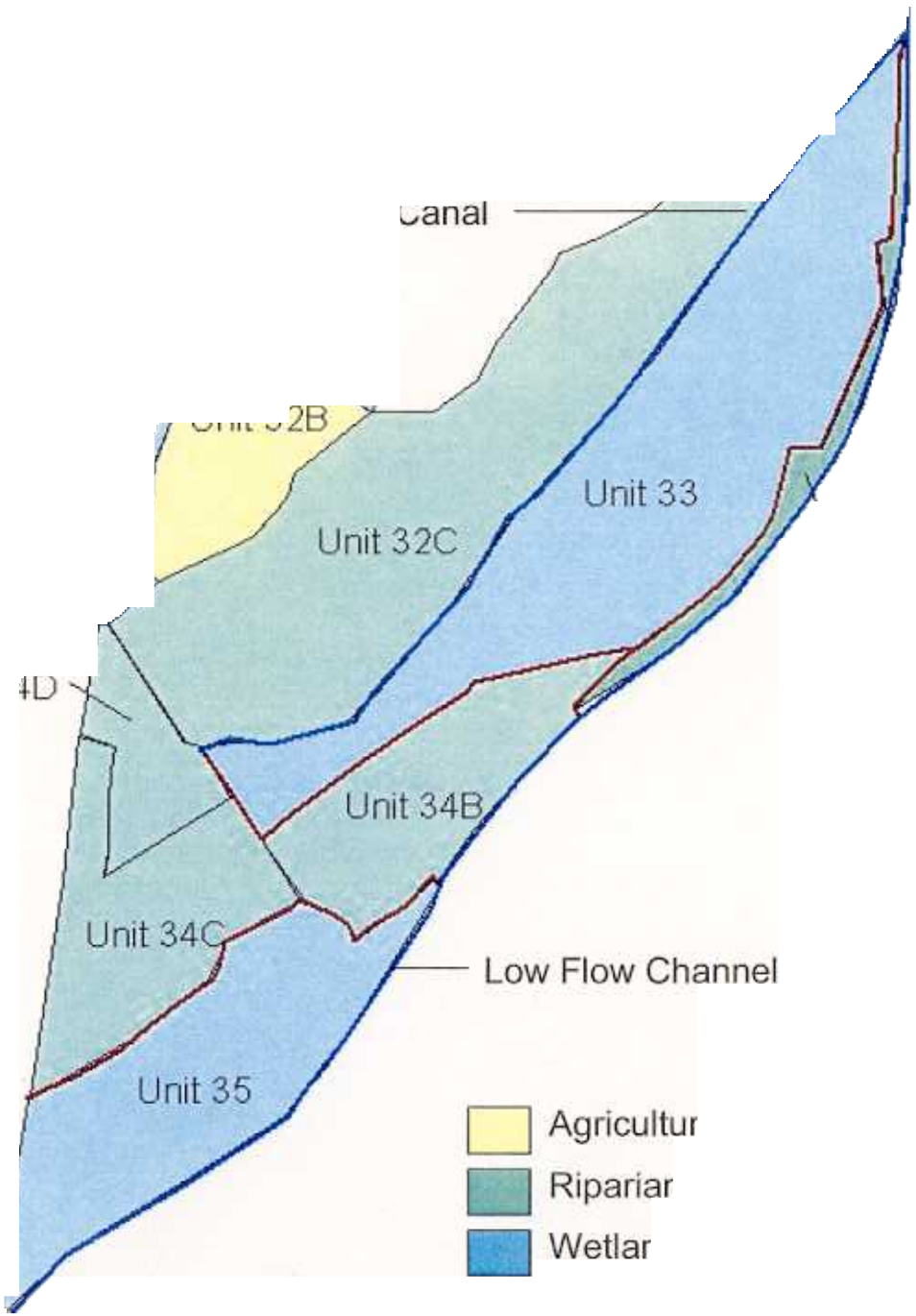

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